

Mount Airy Water Service Area

Current Conditions

The Mount Airy WSA serves 3,627 connections and covers 3,280 acres in both Frederick and Carroll counties. The Town of Mount Airy owns and operates the community water supply system that provides water to Town residents only. Unincorporated areas planned for service must first be annexed into Town prior to appropriations. Appropriated average daily demand based on month of maximum use is 1,386,500 gpd; permitted average daily demand based on yearly average is 927,000 gpd. See Map 15: Mount Airy WSA.

The Town of Mount Airy is unique among all municipalities in that it is not only divided between two counties it is also divided among five watersheds. The unconfined fractured rock aquifer within the Ijamsville Formation and Marburg Schist is the Town's water source. The system uses 11 wells to obtain its drinking water. The Mount Airy water supply is susceptible to PFAS, nitrate contamination, VOCs (except well 8), SOCs, and radionuclides, but not susceptible to protozoans. Further, Wells #2 and #7 are susceptible to bacteria and viruses.

With increased attention to PFAS levels in drinking water systems by the EPA the Mount Airy Water System was tested at all 5 stations' points of entry to the system and on all raw water points at all 11 individual wells. Several stations/wells were found to have elevated levels of PFAS which, if EPA's recently proposed MCL holds, the Town will then need to treat several treatment plants for these forever chemicals. Quarterly testing has been implemented and a DWSRF grant application has been submitted for funding assistance.

Considering existing pipeline projects, the Town's water system is beyond 80%, but not exceeding 88% of its appropriations and is therefore, in accordance with Town Code, approaching inadequate capacity. See Table 9A for Mount Airy WSA appropriations. See Table 9B for Mount Airy WSA Average Daily Use; and Table 9C for Mount Airy WSA Storage Tanks.

Table 9A: Mount Airy WSA Appropriations
(as of January 2023)

6-Digit Watershed	Water Source	Permit Number	Permitted Daily Average Use (gpd)	Average Daily Demand Month of Maximum Use (gpd)
Middle Potomac	Wells #1-4	FR1976G007(07)	255,000	347,000
Patapsco	Well #5	CL1987G076 (08)	43,000	43,300
Patapsco	Well #6	CL1987G176 (09)	149,000	180,000
Middle Potomac	Well #7	FR1976G107(03)	99,000	139,000
Patapsco	Well #8	FR1995G020(04)	150,000	210,000
Middle Potomac	Well #9	FR2001G022(03)	79,000	204,000
Patapsco	Well #10 (Flickinger)	CL2000G022 (04)	77,000	144,000
Patapsco	Well #11	CL2009G001(03)	75,000	82,500
Totals			927,000	1,353,500

Map 15

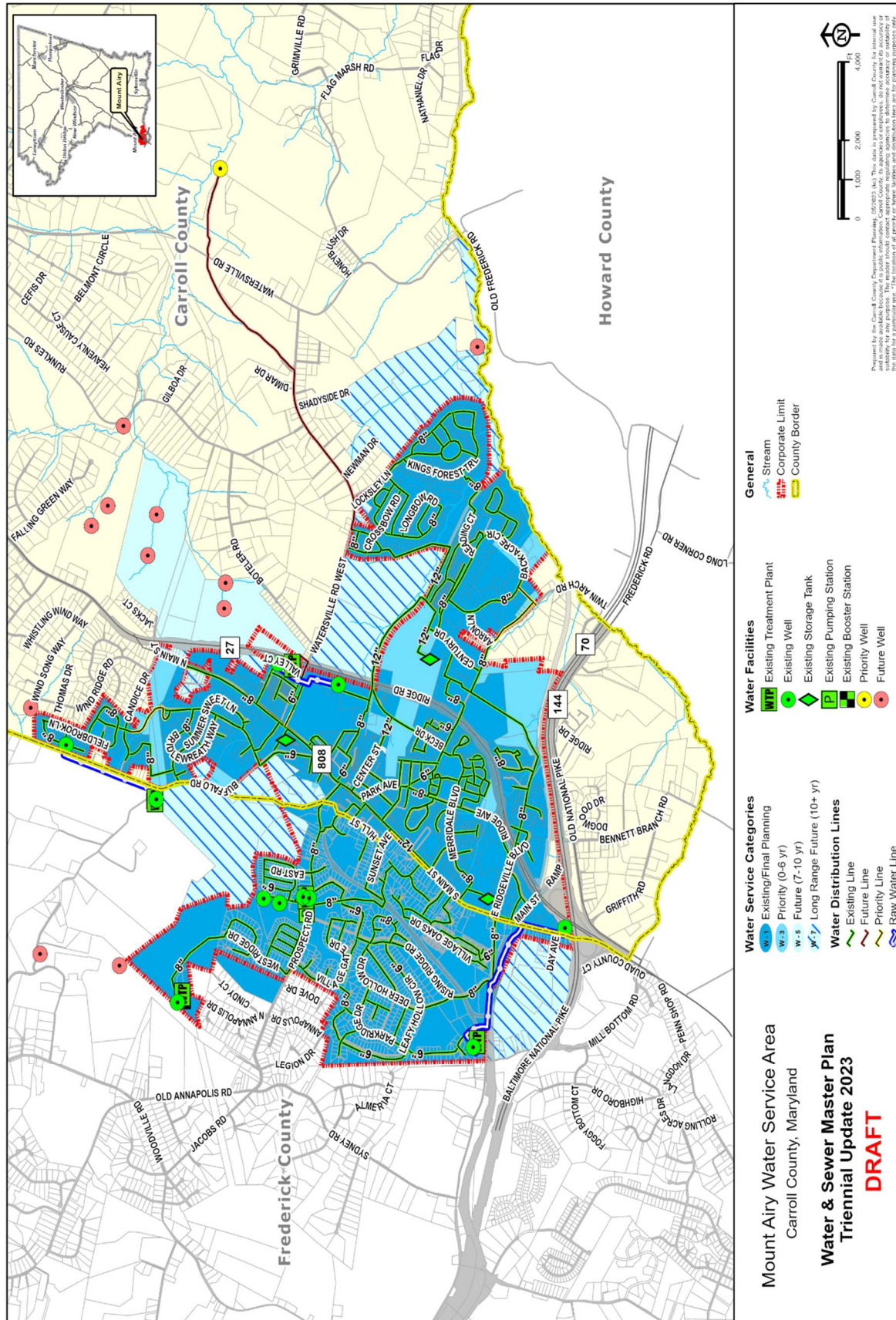


Table 9B: Mount Airy WSA Average Daily Use

Water Source	Max. Safe Yield (MGD)	Avg. Daily Use (MGD)	Max. Peak Flow (MGD)
Main Well Field (1- 4)	0.347	0.202	0.720
Well Fields 5 & 6	0.260	0.132	0.290
Well Fields 7 & 11	0.221	0.118	0.259
Well Fields 8 & 10	0.354	0.173	0.354
Well Field 9	0.204	0.079	0.288
Total	1.386	0.704	1.911*

*The Town only runs 2 of the 4 wells at any one time **Average Daily Use values specific to Well Fields will be updated as information becomes available.

Table 9C: Mount Airy WSA Storage Tanks

Storage Tank	Storage Capacity (mg)
Elevated Tank 1	0.200
Elevated Tank 2	0.500
Elevated Tank 3	1.005
Total	1.705

Allocation Procedure

The Town's Adequate Public Facilities Ordinance (APFO) requires the Planning Commission to review the adequacy of public facilities, including water upon submission of the first development plan by a developer. If water supply for any development is not adequate, the project may not proceed until such water supply becomes available. However, review of adequacy of facilities is not required for site plans for any lot contained within a commercial or industrial subdivision that received preliminary plan approval prior to April 5, 2005, unless the proposed development project is designated a "large water user". (A "large water user" refers to any proposed use which, according to water and use projections adopted by the Carroll County Health Department, will generate an average daily water consumption rate of greater than 2,500 gallons per day.)

Needs Analysis

Total future water demand assumes full build out within the growth area boundary, producing a water demand of 1,092,000 gpd. With current appropriations, the Town will need to identify an additional 165,000 gpd to meet future water demand needs. To address these needs, the Town will seek new water sources, preferably groundwater sources.

Recently, the Town worked with Carroll County and MDE for approval of appropriations to four wells on the Harrison/Leishear Properties (Wells #1, #3, #12, and #18). Based on the Town's testing, in accordance with MDE procedures, the wells have an anticipated (combined) appropriation amount of 152,000 gpd. The appropriation is pending annexation of the property into the Town's corporate boundaries. The wells are situated in the Middle Run Stream subwatershed and are adjacent to the Town's Water Station #2, which was upgraded in 2016. The Town and County's use of these wells is still to be determined.

With the proximity of the wells and the need for treatment upgrade, it would be most feasible, and in the Town's best interest, to acquire water rights and easements on the Harrison/Leishear property, and be granted the equivalent water recharge area of the Middle Run Stream subwatershed that will achieve adequate water supply at buildout. An estimated 300 gpd per acre is equivalent to 176,700

gpd of recharge area. The County has identified up to 589 acres that the Town may use for a recharge area.

Planned Projects and Recommendations

See Table 9D for Mount Airy WSA priority projects.

Table 9D: Mount Airy WSA Priority Projects

Project Name	Planning Category	Description	Location	Capacity Added
New well connection and waterline	Priority (W-3) Immediate	Develop Wells #1, 3, 12, & 18 on Harrison/Leishear Property and pipe to Water Station #2 for Treatment and Distribution.	East of MD27 & North of Watersville Road	.152 MGD
Upgrade Water Mains	Priority (W-3) 5 years	Hydraulics Upgrades	Key Areas of System	0 MGD

Long-Term Recommendations (10+ years)

Note: These are options that will be considered for long-term supply. However, inclusion here does not imply that there is a definite plan to move forward with an option. Exploring additional sources, even for those systems that currently project enough capacity to meet demand is included, in order to be prepared for policy changes or other changes that would result in the need for additional available water capacity.

- ♦ Middle Run Branch (Gillis Falls) Well: Anticipated yield 0.050 mgd
- ♦ Surface Water Intake in Gillis Falls Area: Safe yield 0.85 mgd; develop new surface water intake on Carroll County-owned property near planned Gillis Falls Reservoir; 100-120 mg off-stream storage impoundment
- ♦ Interconnection with Freedom: Interconnect with the Freedom water system and purchase agreement to supply approximately 0.85 mgd; 9.7 miles
 - Piney Run Reservoir (as built): Safe yield 3.65 mgd with normal pool elevation of 524 ft.; existing reservoir; to serve as regional source of supply for Mount Airy and The Freedom WSA
 - Piney Run Reservoir (expanded): Safe yield 4.11 mgd; increase capacity of existing reservoir by raising the spillway riser and emergency spillway; to serve as regional source of supply for Mount Airy and Freedom WSA
- ♦ Interconnection with Frederick County: Interconnection with Frederick County water system and purchase agreement to supply approximately 0.85 mgd (with a maximum agreement of 1.2 mgd)
- ♦ Gillis Falls Reservoir: Safe yield 3.85 mgd with normal pool elevation of 610 ft.; planned reservoir; to serve as regional source of supply for Mount Airy and Sykesville/Freedom Service Areas

The long-term water supply options, beyond further groundwater exploration, may not be financially feasible and may be severely limited due to capacity.

- ♦ Harrison/Leishear Wells #18, #12, #3 and #1 (Middle Run Branch): Anticipated yield 0.152 mgd on existing wells with water rights from Carroll County on adequate recharge land in the Middle Run subwatershed.
- ♦ Upper Linganore Watershed: Purchase additional land for recharge credits and/or obtain increased appropriations on existing wells 1-4 and well 10 via Senate Bill 674, otherwise known as the "Brinkley Bill."

- ♦ Groundwater Wells (South Branch of Patapsco): Drill and develop additional groundwater wells in the South Branch of the Patapsco watershed to meet projected additional demand up to 0.273 mgd. Includes areas north and south of I-70. The Town already has adequate recharge land to meet this additional capacity.
- ♦ Groundwater Wells (Upper Bush Creek): Drill and develop additional groundwater well(s) in the Upper Bush Creek watershed. This includes the annexation area south of West Ridgeville Blvd and West of South Main Street. Yields in this area will be limited due to available recharge land.
- Groundwater Well (Ben's Branch): Drill and develop a groundwater well in the Ben's Branch subwatershed of Lower Linganore. Anticipated yield 0.030 mgd with current quantity of recharge land.